

BID ADDENDUM #2

September 21, 2020

To:

Prospective Bidders/Planholders

**MAIN DINING ELECTRICAL UPGRADE
California State University Stanislaus
One University Circle, Turlock, CA 95382**

Bid / Project Number: 13534
Bid Opening Date:October 1, 2020
Bid Opening Time:2:00 p.m.

This Addendum forms a part of the contract documents and modifies the original bidding documents. Addendum shall be noted as received and acknowledged on the Bid Proposal Form when submitted as outlined in the Bid Package referenced above.

The following corrections, additions, deletions, and/or modifications to the above package, by this reference, shall be incorporated therein:

Questions and Answers:

- 1) The bid documents do not spec out an ATS manufacturer.

See the attached Section 263600

- 2) Is 400A ATS correct being this is a 1000A meter section?

Revise detail 1/E2.2 to read 800A ATS to match the Single Line Diagram.

- 3) SJAQMD requires a Particulate Matter filter (Rypo) to be installed on an internal combustion engine generator if it is within 500 ft of a school. Just want clarification so we are all bidding the same thing. Are we to quote generator with the PM filter?

Refer to 263213-1.05. B. It is the manufacturer's responsibility to provide that equipment required for compliance.

- 4) Who submits permit applications? Who pays for permit fees? What information is needed to submit for permits?

Add the following to 263213-1.04:

B. The submittal shall contain the following minimum information:

- 1. Engine Generator specification sheet*
- 2. Controls specification sheet(s)*
- 3. Installation / Layout dimensional drawing*
- 4. Wiring schematic*
- 5. Sound data*
- 6. Emission certification*
- 7. Warranty statement*

C. Manufacturer shall assist Owner in acquiring all necessary CARB installation and initial operation permits for the gen-set.

*Contractor will submit documents and pay for the SJVAPCD fees upfront.
Permit fees will be reimbursed to Contractor through change order process.*

- 5) Contract drawings show 300kW generator and 125kW generator. On which are we providing pricing?

Provide a 125kW standby rated generator.

- 6) Is there a designated area to leave a construction trailer for the duration of the project?

We do not anticipate a jobsite trailer being necessary for a job of this size.

- 7) What size fuel tank is needed- How long is support?

Refer to 263213-2.01. G.1. including a - d.

- 8) Who pays for fuel and how much is required?

Contractor to provide a full tank as part of their bid. Contractor will not be responsible to top off the tank upon completion of startup and testing.

- 9) Are Kohler, Generac, Caterpillar and other major generator manufacturers acceptable for this project as long as they meet AQMD requirements and contract specs?

Yes, other major manufacturers are acceptable so long as they meet AQMD requirements and contract specifications.

- 10) Can I have clarification on the type of enclosure for the Meter/Main and ATS equipment that is proposed to be installed outside?

Enclosure should be NEMA 3R.

End of Addenda No. 2

SECTION 26 36 00

AUTOMATIC TRANSFER & BYPASS-ISOLATION SWITCH

PART 1 – GENERAL

1.01 SUMMARY

A. Section includes

1. Provide all labor, materials and equipment necessary to complete the installation required for the items specified under this Section, including but not limited to automatic transfer switches (ATS) or automatic transfer switch with by-pass switch (ATS/BPS).

B. Related sections

1. Where items specified in other Division 26 sections conflict with the requirements of this Section, the most stringent requirement shall govern.
 - a. 26 05 26 – Grounding and Bonding for Electrical Systems
2. The requirements of this Section apply to all Division 26 work, as applicable.
3. Consult all other sections, determine the extent and character of related work and properly coordinate work specified herein with that specified elsewhere to produce a complete installation.

1.02 REFERENCES

A. Comply with the latest edition of the following applicable specifications and standards except as otherwise shown or specified:

1. CCR –California Code of Regulations, Title 24
 - a. Part 3 -California Electrical Code(CEC); NFPA 70 National Electrical Code (NEC) with California amendments
2. NEMA –National Electrical Manufacturer’s Association
 - a. ICS10-1993 (formerly ICS2-447) -AC Automatic Transfer Switches
3. NFPA –Nation Fire Protection Association
 - a. NFPA 99 -Essential Electrical Systems for Health Care Facilities
 - b. NFPA 110 -Emergency and Standby Power Systems
4. UL -Underwriters Laboratories, Inc.
 - a. UL 508 Industrial Control Equipment
 - b. UL 1008 -Standard for Transfer Switch Equipment

1.03 SUBMITTALS

- ###### A. Submit manufacturer’s data for materials specified within this Section in accordance to Section 26 05 00.

- B. Shop Drawings shall indicate front and side enclosure elevations with overall dimensions shown; conduit entrance locations and requirements; nameplate legends; one-line diagrams; equipment schedule; and instrument details.

1.04 QUALITY ASSURANCE

- A. The complete assembly shall be factory tested to ensure proper operation of the individual components and correct overall sequence of operation and to ensure that the operating transfer time, voltage, frequency and time delay settings are in compliance with the specification requirements.
- B. Upon request, the manufacturer shall provide a notarized letter certifying compliance with all of the requirements of this specification including compliance with the above codes and standards, and withstand and closing ratings. The certification shall identify, by serial number(s), the equipment involved. No exceptions to the specifications, other than those stipulated at the time of the submittal, shall be included in the certification.
- C. The manufacturer shall be certified to ISO 9001 International Quality Standard and the manufacturer shall have third party certification verifying quality assurance in design/development, production, installation, and servicing in accordance with ISO 9001.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store, protect, and handle products in conformance with manufacturer's recommended practices as outlined in applicable Installation and Maintenance Manuals.
- B. Store in a clean, dry space. Maintain factory protection and/or provide an additional heavy canvas or heavy plastic cover to protect structure from dirt, water, construction debris, and traffic. Where applicable, provide adequate heating within enclosures to prevent condensation.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

- A. Emerson Power/ASCO Series 7000 or approved equal.

2.02 EQUIPMENT

- A. Mechanically Held Transfer Switch
 1. The transfer switch shall be electrically operated and mechanically held. The electrical operator shall be a momentarily energized, single-solenoid mechanism. Main operators which include overcurrent disconnect devices, linear motors or gears shall not be acceptable. The switch shall be mechanically interlocked to ensure only two possible positions, normal or emergency.
 2. All transfer switch sizes shall use only one type of main operator for ease of maintenance and commonality of parts.
 3. The switch shall be positively locked and unaffected by momentary outages, so that contact pressure is maintained at a constant value and contact temperature rise is minimized for maximum reliability and operating life.

4. All main contacts shall be silver composition. Switches rated 600 amperes and above shall have segmented, blow-on construction for high withstand and close-on capability and be protected by separate arcing contacts.
 5. Inspection of all contacts shall be possible from the front of the switch without disassembly of operating linkages and without disconnection of power conductors. Switches rated 600 amps and higher shall have front removable and replaceable contacts. All stationary and moveable contacts shall be replaceable without removing power conductors and/or bus bars.
 6. Designs utilizing components of molded-case circuit breakers, contactors, or parts thereof, which are not intended for continuous duty, repetitive switching or transfers between two active power sources are not acceptable.
 7. Where neutral conductors must be switched as shown on the plans, the AS shall be provided with fully rated overlapping neutral transfer contacts. The neutrals of the normal and emergency power sources shall be connected together only during the transfer and retransfer operation and remain connected together until power source contacts close on the source to which the transfer is being made. The overlapping neutral contacts shall not overlap for a period greater than 100 milliseconds. Neutral switching contacts that do not overlap are not acceptable.
 8. Where neutral conductors are to be solidly connected as shown on the plans, a neutral conductor plate with fully rated AL-CU pressure connectors shall be provided.
- B. Bypass-Isolation Switch (only as noted on Drawings)
1. A two-way bypass-isolation switch shall provide manual bypass of the load to either source and permit isolation of the automatic transfer switch from all source and load power conductors. All main contacts shall be manually driven.
 2. Power interconnections shall be silver-plated copper bus bar. The only field installed power connections shall be at the service and load terminals of the bypass-isolation switch. All control interwiring shall be provided with disconnect plugs.
 3. Separate bypass and isolation handles shall be utilized to provide clear distinction between the functions. Handles shall be permanently affixed and operable without opening the enclosure door. Designs requiring insertion of loose operating handles or opening of the enclosure door to operate are not acceptable.
 4. Bypass to the load-carrying source shall be accomplished with no interruption of power to the load (make before break contacts). Designs that disconnect the load when bypassing are not acceptable. The bypass handle shall have three operating modes: "Bypass to Normal," "Automatic," and "Bypass to Emergency." The operating speed of the bypass contacts shall be the same as the associated transfer switch and shall be independent of the speed at which the manual handle is operated. In the "Automatic" mode, the bypass contacts shall be out of the power circuit so that they will not be subjected to fault currents to which the system may be subjected.
 5. The isolation handle shall provide three operating modes: "Closed," "Test," and "Open." The "Test" mode shall permit testing of the entire emergency power system, including the automatic transfer switches with no interruption of power to the load. The "Open" mode shall completely isolate the automatic transfer switch from all source and load power conductors. When in the "Open" mode, it shall be possible to completely withdraw the

automatic transfer switch for inspection or maintenance to conform to code requirements without removal of power conductors or the use of any tools.

6. When the isolation switch is in the "Test" or "Open" mode, the bypass switch shall function as a manual transfer switch.
7. Designs requiring operation of key interlocks for bypass isolation or ATS's that cannot be completely withdrawn when isolated are not acceptable.

C. Microprocessor Controller

1. The controller's sensing and logic shall be provided by a single built-in microprocessor for maximum reliability, minimum maintenance, and the ability to communicate serially through an optional serial communication module.
2. A single controller shall provide twelve selectable nominal voltages for maximum application flexibility and minimal spare part requirements. Voltage sensing shall be true RMS type and shall be accurate to $\pm 1\%$ of nominal voltage. Frequency sensing shall be accurate to $\pm 0.2\%$. The panel shall be capable of operating over a temperature range of -20 to +60°C and storage from -55 to +85°C.
3. The controller shall be connected to the transfer switch by an interconnecting wiring harness. The harness shall include a keyed disconnect plug to enable the controller to be disconnected from the transfer switch for routine maintenance. Sensing and control logic shall be provided on multi-layer printed circuit boards. Interfacing relays shall be industrial grade plug-in type with dust covers. The panel shall be enclosed with a protective cover and be mounted separately from the transfer switch unit for safety and ease of maintenance. The protective cover shall include a built-in pocket for storage of the operator's manuals.
4. All customer connections shall be wired to a common terminal block to simplify field-wiring connections.
5. The controller shall meet or exceed the requirements for Electromagnetic Compatibility (EMC) as follows:
 - a. IEEE472 (ANSI C37.90A) Ring Wave Test.
 - b. EN55011 1991 Class A Conducted and Radiated Emission.
 - c. EN61000-4-2 Electrostatic Discharge Immunity, Direct Contact & Air Discharge.
 - d. EN61000-4-3 Radiated Electromagnetic Field Immunity.
 - e. EN61000-4-4 Electrical Fast Transient Immunity.
 - f. EN61000-4-5 Surge Immunity.
 - g. ENV50141 HF Conducted Disturbances Immunity.

D. Enclosure

1. The ATS/BPS shall be furnished in a NEMA type 1 enclosure unless otherwise shown on the plans.
2. All standard and optional door-mounted switches and pilot lights shall be 16mm industrial grade type or equivalent for easy viewing & replacement. Door controls shall be provided on a separate removable plate, which can be supplied loose for open type units.

2.03 OPERATION

A. Controller Display and Keypad

1. A four line, 20 character LCD display and keypad shall be an integral part of the controller for viewing all available data and setting desired operational parameters. Operational parameters shall also be available for viewing and limited control through the serial communications input port. The following parameters shall only be adjustable via DIP switches on the controller:
 - a. Nominal line voltage and frequency
 - b. Single or three phase sensing
 - c. Operating parameter protection
 - d. Transfer operating mode configuration: (Open transition, Closed transition or Delayed transition)
2. All instructions and controller settings shall be easily accessible, readable and accomplished without the use of codes, calculations, or instruction manuals.

B. Voltage, Frequency and Phase Rotation Sensing

1. Voltage and frequency on both the normal and emergency sources (as noted below) shall be continuously monitored, with the following pickup, dropout and trip setting capabilities (values shown as % of nominal unless otherwise specified):

Parameter	Sources	(Dropout/Trip)	(Pickup/ Reset)
Undervoltage	N&E,3 ϕ	70 to 98%	85 to 100%
Overvoltage	N&E,3 ϕ	102 to 115%	2% below trip
Underfrequency	N&E	85 to 98%	90 to 100%
Overfrequency	N&E	102 to 110%	2% below trip
Unbalance	N&E	5 to 20%	1% below dropout

2. Repetitive accuracy of all settings shall be within $\pm 0.5\%$ over an operating temperature range of -20°C to 60°C .
3. Voltage and frequency settings shall be field adjustable in 1% increments either locally with the display and keypad or remotely via serial communications port access.
4. The controller shall be capable (when activated by the keypad or through the serial port) of sensing the phase rotation of both the normal and emergency sources. The source shall be considered unacceptable if the phase rotation is not the preferred rotation selected (ABC or CBA).
5. Source status screens shall be provided for both normal & emergency to provide digital readout of voltage on all 3 phases, frequency, and phase rotation.

C. Time Delays

1. An adjustable time delay of 0 to 6 seconds shall be provided to override momentary normal source outages and delay all transfer and engine starting signals. Capability shall be provided to extend this time delay to 60 minutes by providing an external 24 VDC power supply.

2. A time delay shall be provided on transfer to emergency, adjustable from 0 to 60 minutes, for controlled timing of transfer of loads to emergency.
3. Two time delay modes (which are independently adjustable) shall be provided on re-transfer to normal. One time delay shall be for actual normal power failures and the other for the test mode function. The time delays shall be adjustable from 0 to 60 minutes. Time delay shall be automatically bypassed if the emergency source fails and the normal source is acceptable.
4. A time delay shall be provided on shut down of engine generator for cool down, adjustable from 0 to 60 minutes.
5. A time delay activated output signal shall also be provided to drive an external relay(s) for selective load disconnect control. The controller shall have the ability to activate an adjustable 0 to 5 minute time delay in any of the following modes:
 - a. Prior to transfer only.
 - b. Prior to and after transfer.
 - c. Normal to emergency only.
 - d. Emergency to normal only.
 - e. Normal to emergency and emergency to normal.
 - f. All transfer conditions or only when both sources are available.
6. The controller shall also include the following built-in time delays for optional Closed Transition and Delayed Transition operation:
 - a. 1 to 5 minute time delay on failure to synchronize normal and emergency sources prior to closed transition transfer.
 - b. 0.1 to 9.99 seconds time delay on an extended parallel condition of both power sources during closed transition operation.
 - c. 0 to 5 minute time delay for the load disconnect position for delayed transition operation.
7. All time delays shall be adjustable in 1 second increments, except the extended parallel time, which shall be adjustable in .01 second increments.
8. All time delays shall be adjustable by using the LCD display and keypad or with a remote device connected to the serial communications port.

D. Additional Features

1. A three position momentary-type test switch shall be provided for the test / automatic / reset modes. The test position will simulate a normal source failure. The reset position shall bypass the time delays on either transfer to emergency or retransfer to normal.
2. Auxiliary contacts, rated 10 amps, 250 VAC shall be provided consisting of one contact, closed when the ATS is connected to the normal source and one contact closed, when the ATS is connected to the emergency source.
3. LED indicating lights (16mm industrial grade, type 12) shall be provided; one to indicate when the ATS is connected to the normal source (green) and one to indicate when the ATS is connected to the emergency source (red).

4. LED indicating lights (16mm industrial grade, type 12) shall be provided and energized by controller outputs. The lights shall provide true source availability of the normal and emergency sources, as determined by the voltage sensing trip and reset settings for each source.
5. Provide the ability to select “commit/no commit to transfer” to determine whether the load should be transferred to the emergency generator if the normal source restores before the generator is ready to accept the load.
6. Terminals shall be provided for a remote contact that opens to signal the ATS to transfer to emergency and for remote contacts that open to inhibit transfer to emergency and/or retransfer to normal. Both of these inhibit signals can be activated through the keypad or serial port.
7. An inphase monitor shall be provided in the controller. The monitor shall control transfer so that motor load inrush currents do not exceed normal starting currents, and shall not require external control of power sources. The inphase monitor shall be specifically designed for and be the product of the ATS manufacturer. The inphase monitor shall be equal to ASCO Feature 27.
8. The controller shall be capable of accepting a normally open contact that will allow the transfer switch to function in a non-automatic mode using an external control device.
9. System Status -The controller LCD display shall include a “System Status” screen which shall be readily accessible from any point in the menu by depressing the “ESC” key a maximum of two times. This screen shall display a clear description of the active operating sequence and switch position. Controllers that require multiple screens to determine system status or display “coded” system status messages, which must be explained by references in the operator’s manual, are not permissible.
10. Self-Diagnostics -The controller shall contain a diagnostic screen for the purpose of detecting system errors. This screen shall provide information on the status-input signals to the controller that may be preventing load transfer commands from being completed.
11. Communications Interface –The controller shall be capable of interfacing, through an optional serial communication module, with a network of transfer switches, locally (up to 4000 ft.) or remotely through modem serial communications. Standard software specific for transfer switch applications shall be available by the transfer switch manufacturer. This software shall allow for the monitoring, control and setup of parameters.
12. Data Logging –The controller shall have the ability to log data and to maintain the last 99 events, even in the event of total power loss. The following events shall be time and date stamped and maintained in a non-volatile memory:
 - a. Event Logging
 - 1) Data and time and reason for transfer normal to emergency.
 - 2) Data and time and reason for transfer emergency to normal.
 - 3) Data and time and reason for engine start.
 - 4) Data and time engine stopped.
 - 5) Data and time emergency source available.
 - 6) Data and time emergency source not available.

- b. Statistical Data
 - 1) Total number of transfers.
 - 2) Total number of transfers due to source failure.
 - 3) Total number of days controller is energized.
 - 4) Total number of hours both normal and emergency sources is available.

13. Communications Module -A full duplex RS485 interface shall be installed in the ATS controller to enable serial communications. The serial communications shall be capable of a direct connect or multi-drop configured network. This module shall allow for the seamless integration of existing or new communication transfer devices. The serial communication interface shall be equal to ASCO Accessory 72.

2.04 WITHSTAND AND CLOSING RATINGS

- A. The ATS/BPS shall be rated to close on and withstand the available RMS symmetrical short circuit current at the ATS/BPS terminals with the type of overcurrent protection shown on the plans.
- B. The ATS/BPS shall be UL listed in accordance with UL 1008 and be labeled in accordance with that standard's 1½ and 3 cycle, long-time ratings. ATS/BPS's which are not tested and labeled with 1½ and 3 cycle (any breaker) ratings and have series, or specific breaker ratings only, are not acceptable.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Examine ATS to provide adequate clearances for installation.
- B. Check that concrete pads (floor mounted models) and walls (wall mounted models) are level and free of irregularities.
- C. Begin work only after unsatisfactory conditions are corrected.

3.02 INSTALLATION

- A. Install switchboard in location shown on Drawings, in accordance with manufacturer's written instructions. Anchor to resist seismic forces as indicated on Drawings and in accordance with California Building Code anchorage requirements. Provide all testing and inspections requirements by inspecting authority.
- B. Tighten accessible bus connection and mechanical fasteners after placing switchboard.

3.03 FIELD QUALITY CONTROL

- A. Inspect complete installation for physical damage, proper alignment, anchorage and grounding prior to energizing.
- B. Manufacturers' field services
 - 1. The ATS/BPS manufacturer shall maintain a national service organization of company-employed personnel located throughout the contiguous United States. The service center's personnel must be factory trained and must be on call 24 hours a day, 365 days a year.

2. The manufacturer shall maintain records of each switch, by serial number, for a minimum of 20 years.

3.04 *CLEANING*

- A. Touch up scratched or marred surfaces to match original finish

END OF SECTION